

Appl. No. 10/726,812
Amdt. dated June 1, 2006
Reply to Office Action mailed December 2, 2005

PATENT

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims

- 1 1. (Currently Amended) A computer-readable medium containing a storage
2 disk device driver architecture for access by a processing system, wherein the architecture
3 comprises comprising:
4 a RAID class driver including having
5 a first physical device object representing a RAID system comprised of a
6 plurality of disks,
7 ~~each disk associated with a plurality of functional device object objects.~~
8 each associated with one disk and adapted to interface with a second physical device object
9 representing the- that disk, wherein each second physical device object provides and providing a
10 RAID-specific device identification.
- 1 2. (Currently Amended) The ~~storage disk device driver architecture~~
2 computer-readable medium of claim 1, wherein the physical device object providing a RAID-
3 specific device identification is included in a disk controller driver adapted to interface with a
4 disk controller.
- 1 3. (Currently Amended) The ~~storage disk device driver architecture~~
2 computer-readable medium of claim 1, wherein the physical device object representing the
3 RAID system is adapted to provide a standard disk device identification to an operating system.
- 1 4. (Currently Amended) The ~~storage disk device driver architecture~~
2 computer-readable medium of claim 1, wherein the RAID class driver is adapted to combine
3 each disk into a RAID system.
- 1 5. (Currently Amended) The ~~storage disk device driver architecture~~
2 computer-readable medium of claim 4, wherein in response to receiving a request to write a data

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3 block to RAID system, the RAID class driver is adapted to mirror the data block on at least a
4 portion of the plurality of disks via the associated functional device objects.

1 6. (Currently Amended) The ~~storage disk device driver architecture~~
2 computer-readable medium of claim 4, wherein in response to receiving a request to write a first
3 and second data block to RAID system, the RAID class driver is adapted to write via the
4 associated functional device objects the first data block to a first portion of the plurality of disks
5 and to write via the associated functional device objects the second data block to a second
6 portion of the plurality of disks.

1 7. (Currently Amended) The ~~storage disk device driver architecture~~
2 computer-readable medium of claim 4, wherein in response to receiving a request to write a first
3 and second data block to RAID system, the RAID class driver is adapted to write via the
4 associated functional device objects an error correction block to a portion of the plurality of
5 disks.

1 8. (Currently Amended) The ~~storage disk device driver architecture~~
2 computer-readable medium of claim 1, wherein the physical device object representing a RAID
3 system is a child of a RAID controller functional device object adapted to interface with a RAID
4 controller physical device object.

1 9. (Currently Amended) The ~~storage disk device driver architecture~~
2 computer-readable medium of claim 1, wherein the RAID class driver is adapted to configure the
3 physical device object representing a RAID system according to RAID configuration data stored
4 in a computer system configuration memory.

1 10. (Currently Amended) The ~~storage disk device driver architecture~~
2 computer-readable medium of claim 1, wherein a first portion of the plurality of disks is
3 associated with a first disk controller of a first type and a second portion of the plurality of disks
4 is associated with a second disk controller of a second type.

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1 11. (Currently Amended) The ~~storage disk device driver architecture~~
2 computer-readable medium of claim 10, wherein the first type is an EIDE type controller and the
3 second type is a SCSI type controller.

1 12. (Currently Amended) The ~~storage disk device driver architecture~~
2 computer-readable medium of claim 10, wherein the first type is a serial ATA type controller and
3 the second type is a parallel ATA type controller.

1 13. (Currently Amended) The ~~storage disk device driver architecture~~
2 computer-readable medium of claim 10, wherein the second type is a controller for an external
3 disk.

1 14. (Currently Amended) The ~~storage disk device driver architecture~~
2 computer-readable medium of claim 1, wherein the RAID class driver is adapted to optimize
3 data access by combining separate data access operations associated with a disk of the RAID
4 system into a single data access operation.

1 15. (Currently Amended) An integrated circuit adapted to perform core logic
2 functions of a computer, the integrated circuit comprising:

3 a RAID controller adapted to induce an operating system to load a RAID class
4 driver having a physical device object representing a RAID system comprised of a plurality of
5 disks; and

6 a first disk controller adapted to interface with at least a portion of the plurality of
7 disks and further adapted to induce the operating system to load a disk controller driver, wherein
8 the disk controller driver is adapted to provide RAID-specific device identifications for the
9 portion of the plurality of disks.

1 16. (Original) The integrated circuit of claim 15, wherein the physical
2 device object representing the RAID system is adapted to provide a standard disk device
3 identification to an operating system.

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1 17. (Original) The integrated circuit of claim 15, wherein in response to
2 receiving a request to write a data block to the RAID system, the integrated circuit is adapted to
3 mirror the data block on at least a portion of the plurality of disks.

1 18. (Original) The integrated circuit of claim 15, wherein in response to
2 receiving a request to write a first and second data block to the RAID system, the integrated
3 circuit is adapted to write the first data block to a first subset of the portion of the plurality of
4 disks and to write the second data block to a second subset of the portion of the plurality of disks.

1 19. (Original) The integrated circuit of claim 15, wherein in response to
2 receiving a request to write a first and second data block to the RAID system, the integrated
3 circuit is adapted to write an error correction block to at least a subset of the portion of the
4 plurality of disks.

1 20. (Original) The integrated circuit of claim 19, wherein the integrated
2 circuit is adapted to determine the value of an error correction block from the first and second
3 data block.

1 21. (Original) The integrated circuit of claim 15, wherein the integrated
2 circuit is adapted to configure the physical device object representing a RAID system according
3 to RAID configuration data stored in a computer system configuration memory.

1 22. (Original) The integrated circuit of claim 15, further adapted to
2 interface with a second disk controller, wherein the second disk controller adapted to interface
3 with at least a second portion of the plurality of disks and further adapted to induce the operating
4 system to load a second disk controller driver, wherein the second disk controller driver is
5 adapted to provide RAID-specific device identifications for the second portion of the plurality of
6 disks.

1 23. (Original) The integrated circuit of claim 15, further including a
2 second disk controller adapted to interface with at least a second portion of the plurality of disks
3 and further adapted to induce the operating system to load a second disk controller driver,

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4 wherein the second disk controller driver is adapted to provide RAID-specific device
5 identifications for the second portion of the plurality of disks.

1 24. (Original) The integrated circuit of claim 23, wherein the first disk
2 controller is of a first type and the second disk controller is of a second type.

1 25. (Original) The integrated circuit of claim 24, wherein the first type is
2 an EIDE type controller and the second type is a SCSI type controller.

1 26. (Original) The integrated circuit of claim 24, wherein the first type is
2 a serial ATA type controller and the second type is a parallel ATA type controller.

1 27. (Original) The integrated circuit of claim 24, wherein the second type
2 is a controller for an external disk.

1 28. (New) A method of creating a RAID system comprised of a plurality of
2 disks, comprising:
3 receiving a RAID-specific device identification for each disk of the RAID system;
4 binding a RAID-specific functional interface to each disk having a RAID-specific
5 device identification;
6 combining the disks into a disk object representing the entire RAID system; and
7 providing the operating system with a standard disk device identification via the
8 disk object.

1 29. (New) The method of claim 28, wherein the RAID-specific device
2 identification is received from one or more disk controllers, wherein each disk controller is
3 adapted to interface with at least a portion of the plurality of disks.

1 30. (New) The method of claim 29, wherein a first disk controller is of a first
2 type and a second disk controller is of a second type.

1 31. (New) The method of claim 28, wherein the RAID-specific device
2 identification for each disk of the RAID system is obtained from a CMOS configuration.

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1 32. (New) The method of claim 28, further comprising initializing the RAID
2 class driver in response to the identification of a RAID controller.

1 33. (New) The method of claim 32, wherein the RAID controller comprises
2 hardware.

1 34. (New) The method of claim 28, further comprising loading a standard
2 disk driver to interface with the disk object, thereby enabling transparent access to the RAID
3 system.